## REMARKS/ARGUMENTS

**Supplemental information disclosure statement:**

The applicants noticed that the copy of Jebrak *et al.* that was filed in an information disclosure statement on February 15, 2007 was missing the even pages. The applicants are therefore filing herewith a supplemental information disclosure statement that cites the entire Jebrak *et al.* reference including both odd and even pages. A copy of the full reference was also provided to the Examiners before the in person interview that was held on February 17, 2010.

**Interview:**

The applicants wish to thank Examiners Takeuchi and King for granting an in person interview on February 17, 2010. Dr. Morency (one of the inventors) and the undersigned were present. Dr. Morency began the interview by providing the Examiners with some background to the claimed process. In particular, Dr. Morency explained how the use of a phosphate in the claimed process solves a number of practical challenges that result from the complex chemical nature of EAF dust. At the conclusion of the interview, the Examiners suggested that applicants provide a Declaration with evidence of these advantages. The examiners indicated that such evidence would help move the case forward.

**Remarks on the pending claims:**

No amendments to the claims have been made with this response.

**Response to obviousness rejection:**

The applicants have taken due note of the Office Action's rejection of the claims for obviousness and in light of the in person interview submit the following response.

The applicants maintain that no *prima facie* case of obviousness has been established based on a combination of Matthews *et al.* and Jebrak *et al.*, notably since (a) the specific sequence and combination of steps of claim 1 are not disclosed by the combination of the cited references and (b) the person of ordinary skill in the art would have no reason to apply any of the teachings of Matthews *et al.* in the context of the

process taught by Jebrak *et al.* These points are discussed in a Declaration by Dr. Weiss which is filed herewith and which is hereby incorporated by reference (the "Weiss Declaration").

Nevertheless, in order to advance the present application toward allowance in a timely fashion, the applicants submit herewith a Declaration by Dr. Morency (the "Morency Declaration") with the following evidence of non-obviousness.

Table 1 of the Morency Declaration presents comparative data regarding a number of different surfactants, including phosphate surfactants, added to EAF dust slurry and the resulting viscosity. Each surfactant was added to the EAF dust slurry until a saturation point was reached with regard to the viscosity. Note that data for two different slurries is shown (B99 #77 and B99 #78). Table 1 clearly demonstrates that the phosphate surfactant was able to achieve an unexpectedly low viscosity of the slurry. Of the surfactants tested in Table 1, the sodium metaphosphate enabled the lowest viscosity (80 cps) for EAF dust source B99 #77, and Calgon phosphate surfactant enabled the lowest viscosity (240 cps) for EAF dust source B99 #78. Since slurry viscosity is reasonably indicative of the extent of dispersion, the processability and the screenability of the slurry, these results show that not all surfactants produce the same results and that, in the context of the claimed process, a phosphate surfactant enables advantages over other types of surfactants typically used for dispersion purposes.

Photographs 1-6 present comparative evidence of a number of different surfactants added to a sample of EAF dust slurry:

- Photographs 1a-1b show the effect of a sulfonate surfactant (from the Saratan surfactant family supplied by Handy Chemicals, Ltd.) after 5 days of decantation.

- Photographs 2a-2b show the effect of a different sulfonate surfactant (from the Disal surfactant family supplied by Handy Chemicals, Ltd.) after 5 days of decantation.

- Photograph 3 shows the effect of methanol surfactant after 3 days of decantation. Note that methanol is the compound used and taught by Jebrak *et al.*

- Photographs 4a-4b show the effect of no surfactant after 3 and 6 days of decantation, respectively.

- Photographs 5a-5b show the effect of a phosphate surfactant (sodium metaphosphate) after 3 and 6 days of decantation, respectively.

- Photograph 6a shows a filtering screen when no surfactant was used, which resulted in ferrites being retained on the screen due to the clogging with calcium compounds.

- Photograph 6b shows a filtering screen when phosphate surfactant (sodium metaphosphate) was used, which significantly reduced if not eliminated the clogging and the amount of ferrites retained on the screen.

From the Photographic evidence, the phosphate can be seen to be advantageous over the other types of surfactants in two respects.

First, the phosphate enables greater water and glass clarity in the decantation experiments, which indicates improved sequestration of calcium compounds which tend to deposit on and coat the glass container and remain suspended within the supernatant water. Contrast the Saratan, Disal and methanol surfactants in Photographs 1-3, which give higher turbidity and a significant calcium deposition, with the phosphate in Photograph 5, which provides a clear supernatant and virtually no calcium deposition on the container. In practice, a greater tendency of calcium deposition results in clogging of the screens and processing equipment used in the hydrometallurgical process (compare Photographs 5 and 6).

Second, the phosphate enables retention of more material within the settled phase. Contrast the Saratan, Disal and methanol surfactants in Photographs 1-3, which give a total settled volume under 200 ml (see dark matter at bottom of each vessel), with the phosphate in Photograph 5b which after 6 days gives a settled volume of about 280 ml. These Photographs show that when phosphate is used the settled phase experiences superior particle dispersion contributing to the higher volume of the settled phase.

The evidence provided in the Morency Declaration demonstrates that, in the context of the claimed process, a phosphate surfactant provides several unexpected advantages over other types of surfactants and dispersants that are typically used (as noted above, the Disal and Saratan surfactants are sulfonate-based compounds and methanol is an alcohol-based compound). Specifically, the phosphate surfactant enables advantages in the EAF dust slurry related to dispersing the ferrite particles adsorbed on the magnetite particles and sequestering calcium compounds, as evidenced by Table 1 and Photographs 1-6 submitted with the Morency Declaration.

**Conclusion:**

In light of the interview and the evidence provided in the Morency Declaration filed herewith, the applicants believe that the application is in condition for allowance and respectfully request withdrawal of the rejections along with an indication of allowance.

Respectfully submitted,

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/Charles E. Lyon/
Charles E. Lyon, D.Phil., J.D.
Attorney for Applicant
Registration No. 56,630

PATENT DEPARTMENT
CHOATE, HALL & STEWART, LLP
Two International Place
Boston, MA 02110
Tel: (617) 248-4793
Fax: (617) 502-5002
clyon@choate.com